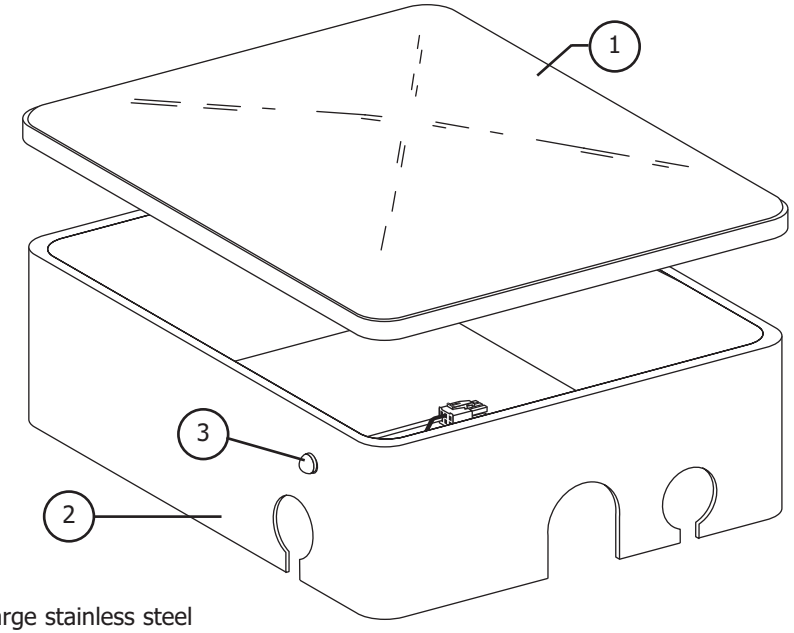
Floor Boxes and Power Supplies

This section provides information useful for servicing, adjusting, and maintaining floor boxes and related assemblies. Additional information presented includes flow diagrams, exploded drawings of the floor box components with service parts references, and troubleshooting detail.

Stainless Steel Floor Box

Item #	Part Number	Description
1	30.0380.01	Cover, small stainless steel floor box
	41.0407.00	Cover, medium stainless steel floor box
	41.0413.00	Cover, large stainless steel floor box
2	41.0034.00	Frame with cover and mounting kit
	41.0408.00	Frame with plugs
	41.0414.00	Frame
3	041.582.00	Indicator light (beginning 8/98)
—	47.1260.00	Indicator light assembly (before 8/98)

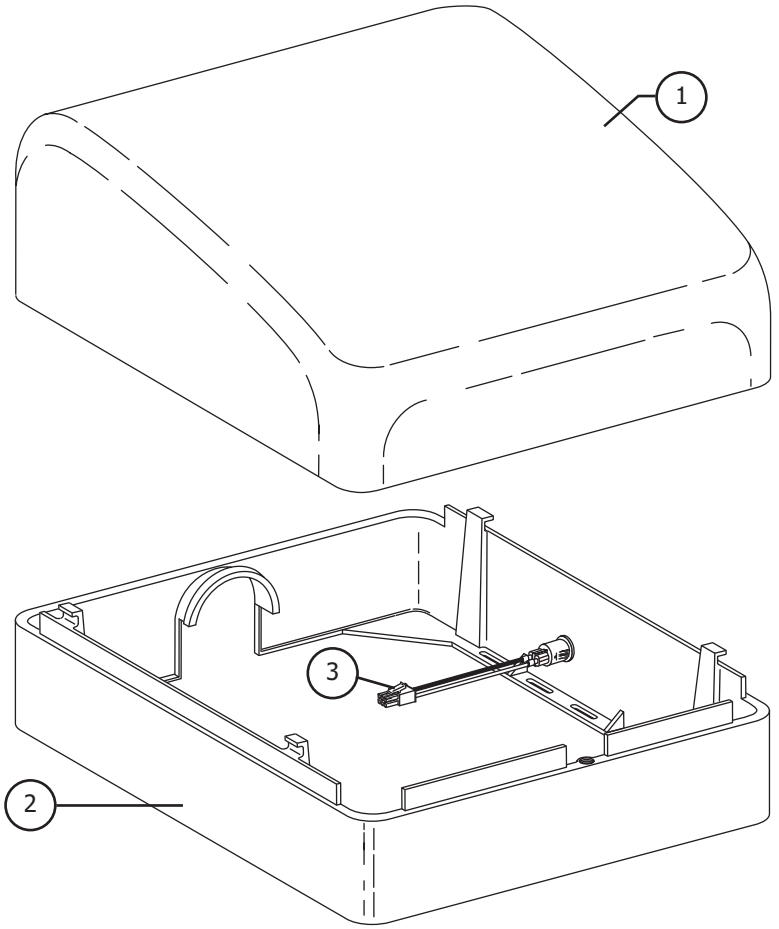


(Large stainless steel floor box shown)

Stainless Steel Floor Box with Indicator Light

Cascade Contoured Floor Box

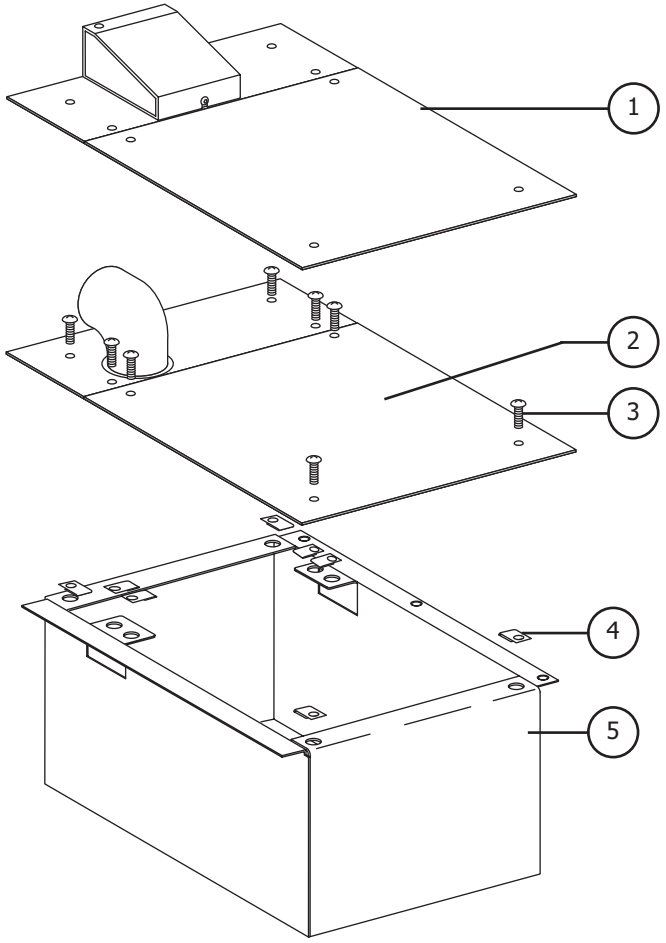
Item #	Part number	Description
1	41.0416.00	Cover
2	41.0417.00	Frame
	47.1256.00	Frame, International, dual hole
3	47.1260.00	Indicator light assembly



Cascade Contoured Floor Box with Indicator Light

Flush-Mount Floor Box

Item #	Part Number	Description
1	41.1413.00	Cover with 2" umbilical connector
2	41.1179.00	Cover with 1-3/4" umbilical elbow
3	001.202.01	Screws pkg 8
4	006.122.01	Retainer nut pkg 8
5	41.1173.00	Flush-mount box

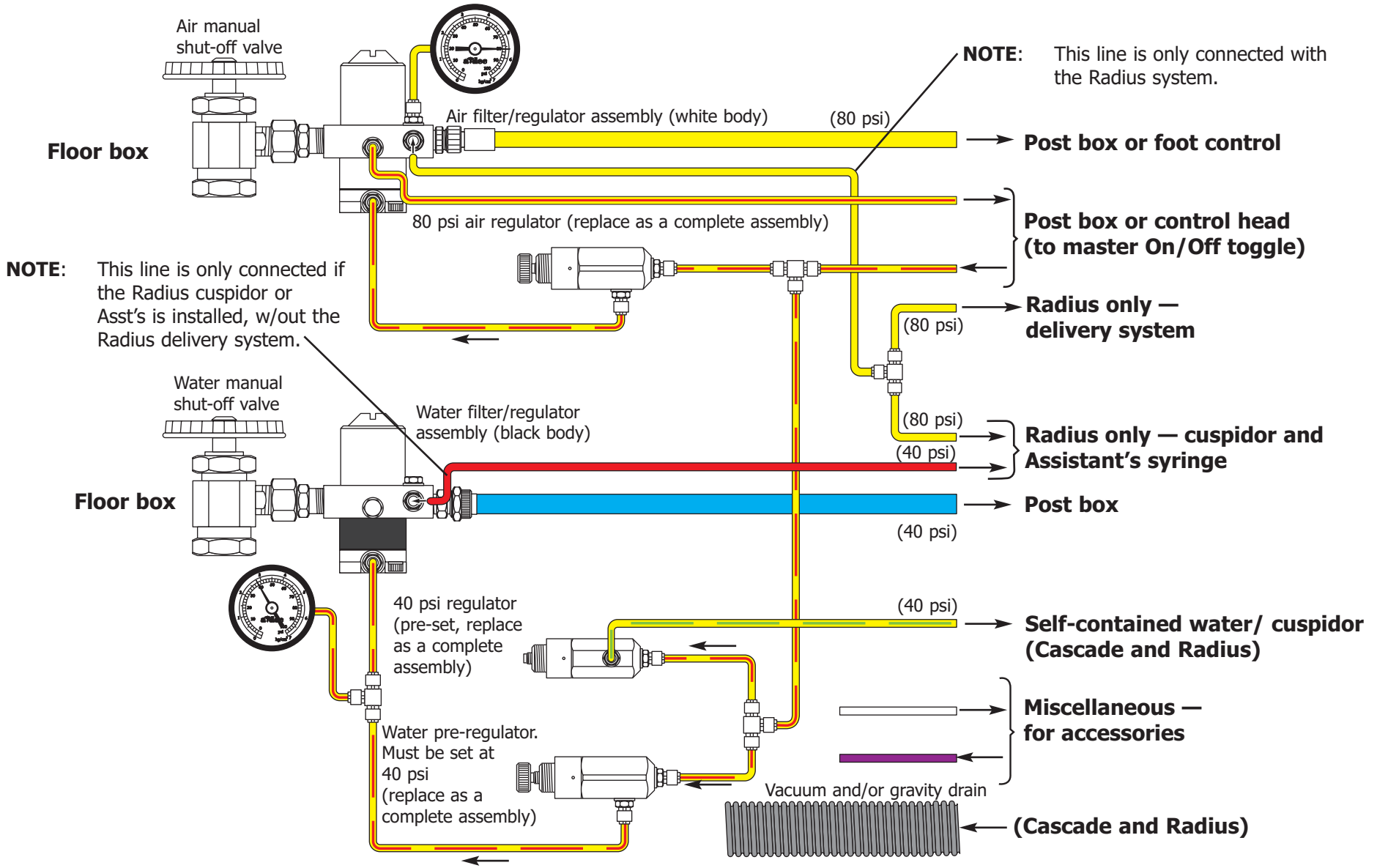


Cascade Contoured Floor Box with 1-3/4" and 2" Umbilical Elbow Assembly

Floor Boxes and Power Supplies

Plumbing Diagram

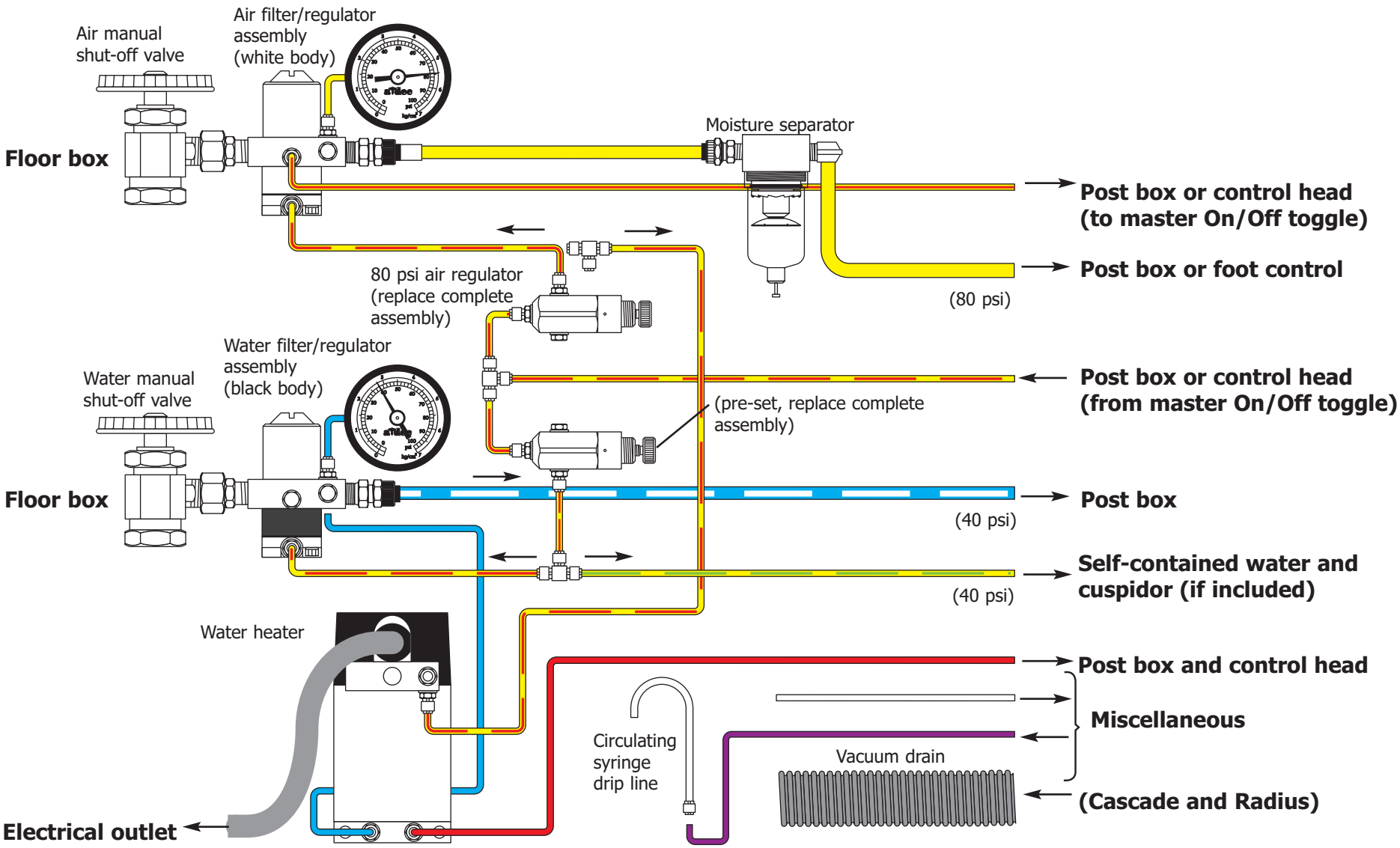
After November 1999


Air manual shut-off valve
Floor box
Air filter/regulator assembly (white body)
(80 psi)
NOTE: This line is only connected with the Radius system.
Post box or foot control
80 psi air regulator (replace as a complete assembly)
Post box or control head (to master On/Off toggle)
NOTE: This line is only connected if the Radius cuspidor or Asst's is installed, w/out the Radius delivery system.
(80 psi)
Radius only — delivery system
Water manual shut-off valve
Water filter/regulator assembly (black body)
(80 psi)
(40 psi)
Radius only — cuspidor and Assistant's syringe
Floor box
Post box
(40 psi)
40 psi regulator (pre-set, replace as a complete assembly)
(40 psi)
Self-contained water/ cuspidor (Cascade and Radius)
Miscellaneous — for accessories
Water pre-regulator. Must be set at 40 psi (replace as a complete assembly)
Vacuum and/or gravity drain
(Cascade and Radius)

Floor Boxes and Power Supplies

Plumbing Diagram

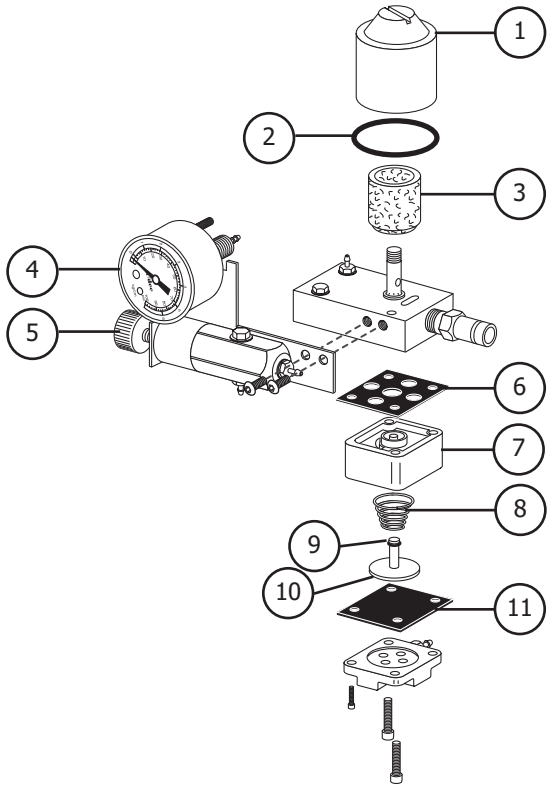
Before December 1999



Air Filter/Regulator Assembly

Item #	Part number	Description
1	24.0229.00	Filter housing
2	030.019.03	O-ring pkg 10
3	24.0234.01	Filter element pkg 6
4	026.118.00	Panel mount gauge kit (0-100 psi)
5	24.0182.02	Pre-regulator, 80 psi, relieving
6	24.0137.01	9-hole gasket pkg 10
7	24.0135.00	Air filter/regulator body, White
8	22.0460.00	Spring, conical
9	030.003.02	O-ring pkg 10
10	24.0132.00	Piston with o-ring
11	22.0440.02	Diaphragm pkg 10

NOTE: To increase air pressure, turn the pre-regulator knob clockwise while reading the air pressure gauge. To decrease, turn the knob counterclockwise. See Adjusting Regulators for more details.

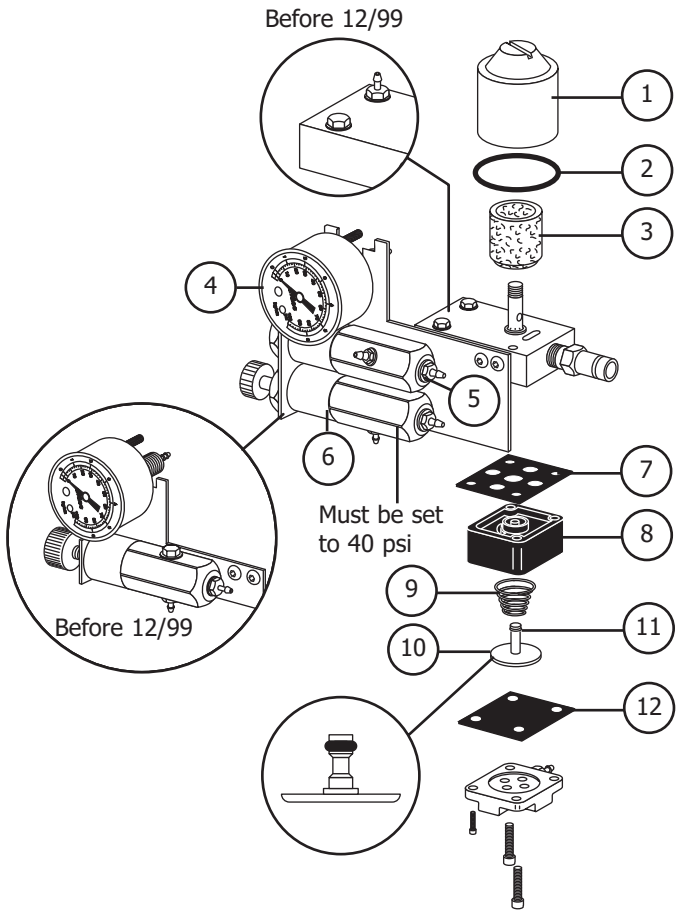


Air Filter/ Regulator Assembly

Water Filter/Regulator Assembly

Item #	Part number	Description
1	24.0229.00	Filter housing
2	030.019.03	O-ring pkg 10
3	24.0234.01	Filter element pkg 6
4	026.118.00	Panel mount gauge kit, 0—100 psi
5	24.0388.02	Regulator, 40 psi, relieving
6	24.0182.02	Pre-regulator, 80 psi, relieving
7	24.0137.01	Gasket, 9-hole, pkg 10
8	24.0355.00	Water filter/regulator body (black)
9	013.032.00	Spring, conical
10	24.0132.00	Piston with o-ring
11	030.003.02	O-ring pkg 10
12	22.0440.02	Diaphragm pkg 10

NOTE: To increase water pressure, turn the pre-regulator knob clockwise while reading the water pressure gauge. To decrease, turn the knob counterclockwise. See Adjusting Regulators for more details.



Water Filter/ Regulator Assembly

Adjusting Regulators

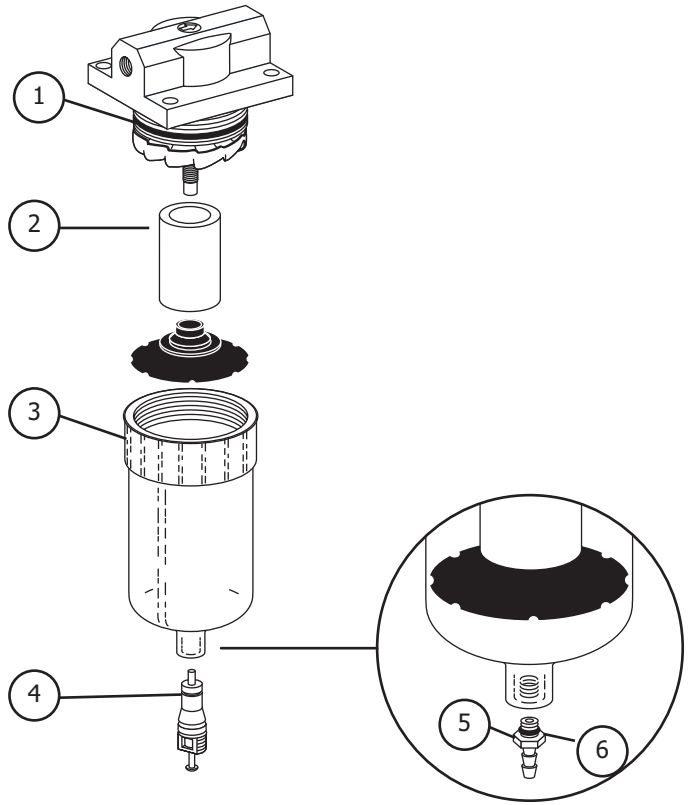
The air and water pre-regulators are located in the floor box. Before making adjustments, verify that the air compressor is ON, and that it maintains 125 psi.

If the air pressure is lower than 80 psi, refer to the compressor instructions. Some compressors, especially older ones, produce a maximum of 60-80 psi. Adjustments on this type of compressor should be done when air pressure is near or reaches maximum psi. A-dec systems will usually function in this pressure range, although at a reduced performance.

Task	Description
1	Be sure manual shutoff valves are fully open (turned counterclockwise).
2	Turn the system ON and check pressures. • Air pressure should be 70 - 80 psi. • Water pressure should be 35 - 40 psi.
3	Operate the syringe.
4	Watch the gauges for a drop in pressure. In units manufactured before December 1999, replace the filters if: • Air pressure drops by more than 15 psi. • Water pressure drops by more than 10 psi.
5	Adjust the air or water pressure as required by turning the pre-regulator knob: • Clockwise to increase pressure. • Counterclockwise to decrease pressure. **NOTE**: The gauge will not indicate a change in pressure when decreasing system air or water pressure, until pressure from the system is relieved. Activate the syringe for a few seconds and check the gauge. Repeat this process each time a decrease adjustment is made.

Manual Moisture Separator

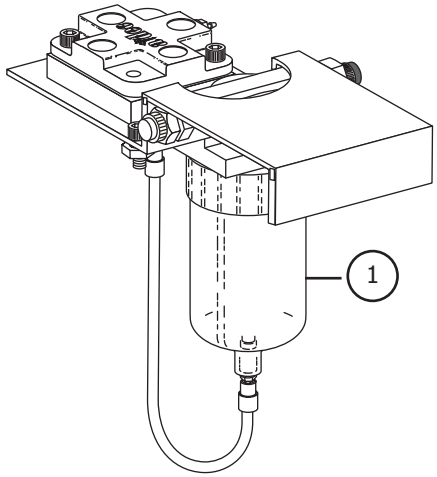
Item #	Part number	Description
1	030.023.02	O-ring pkg 10
2	97.0280.02	Filter element pkg 6
3	97.0290.00	Bowl assembly
4	026.033.01	Valve core, short pkg 10
5	023.066.00	Barb, 1/8"
6	035.026.01	O-ring special pkg 10



Manual Moisture Separator

Automatic Moisture Separator

Item #	Part number	Description
1	97.0290.00	Bowl assembly with seal



90.1027.03 Automatic Moisture Separator

Troubleshooting Floor Boxes

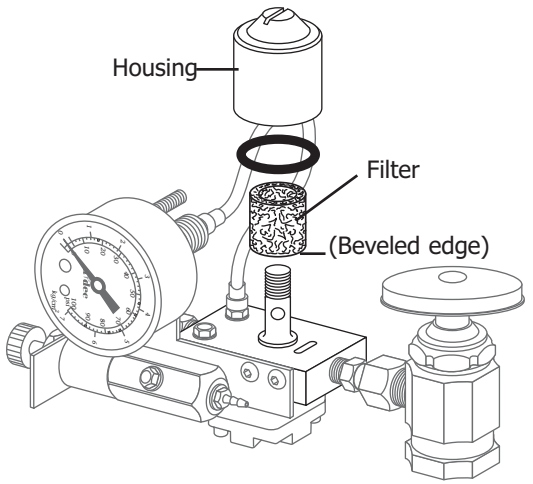
Troubleshooting information for floor boxes is listed in the following charts.

Problem	Action
Unit air pressure drops when unit is in use	Check for a plugged filter element in air filter/regulator following these steps:

CAUTION

When replacing a filter element, be sure to install the new filter with the beveled side towards the manifold. The unit may not work properly if the filter is installed incorrectly.

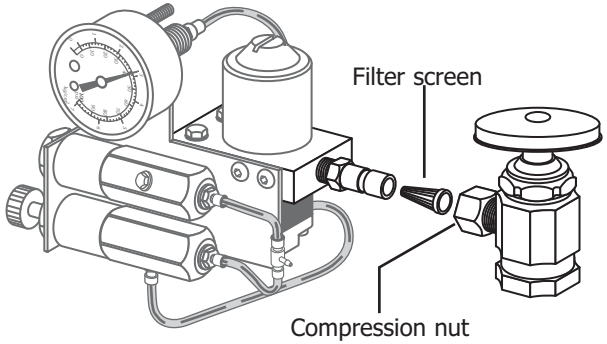
Task	Description
1	Flip the master On/Off toggle to the ON position and remove the floor box cover.
2	Locate and observe the air pressure gauge in the floor box and press the syringe air button. If the air pressure drops by more than 15 psi, the air filter is clogged.
3	Inspect the element. • With the master On/Off toggle in the OFF position, close the air manual shutoff valve. Bleed the system of air and water pressure. • Remove the air regulator filter housing from the regulator assembly. • Remove the filter element and discard it.
4	Replace the element (beveled edge of filter faces the manifold).



Replacing the Filter Element

Problem	Action
Low unit water pressure	Check for a plugged filter element in the water filter/regulator assembly, or a plugged water filter screen in the manual shutoff valve (used before November 1999).

Task	Description
1	Flip the master On/Off toggle to the ON position and then remove the floor box cover.
2	Locate and observe the water pressure gauge in the floor box and press the syringe water button. If the water pressure gauge drops by more than 10 psi, the water filter element and/or the water filter screens are clogged and must be replaced.
3	Replace the water filter element. • With the master On/Off toggle in the OFF position, close the water manual shutoff valve. Bleed the system of air and water pressure. • Remove the water regulator filter housing. • Replace filter and reinstall the filter housing.
4	Inspect the water filter screen. • With the master On/Off toggle in the OFF position, close the manual shutoff valves. Bleed the system of air and water pressure. • Loosen the compression nut and remove the water filter regulator assembly. • Remove the filter screen and discard it. • Reinstall the water filter regulator assembly and tighten the compression nut.
5	Open the water manual shutoff valve and flip the master On/Off toggle to the ON position. Check the fitting for leaks.



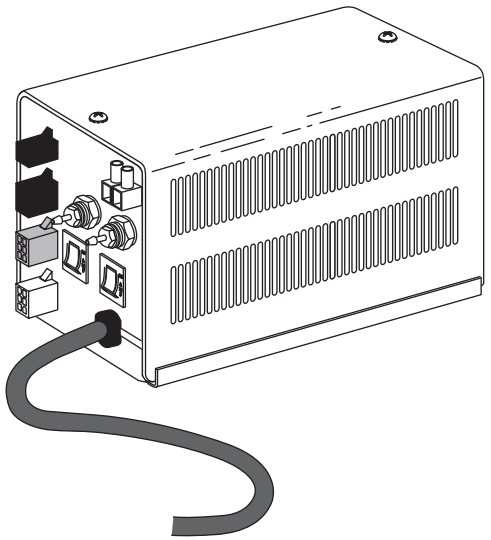
Replacing the Water Filter Screen

Replacing 300-Watt Power Supplies

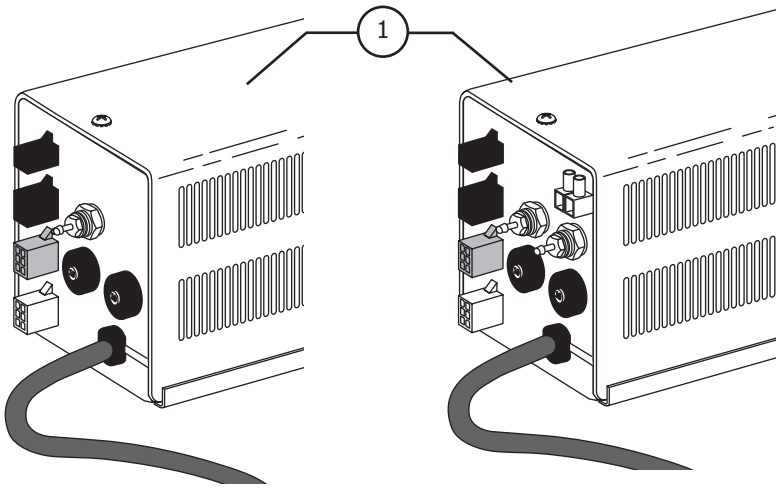
Item #	Part number	Description
1	28.1434.00	100 VAC
2	28.1435.00 28.1436.00	110-120 VAC 220-240 VAC

This section provides information to assist in troubleshooting, replacing and making adjustments to A-dec power supplies. Flow diagrams illustrate how to connect power supplies to the unit after testing or replacement. These diagrams cover all of the A-dec power supplies, except the 80-watt power supply, which is covered in the *Performer (PR)* section.

NOTE: There are no serviceable parts on A-dec power supplies. Replacement of the complete assembly is required.



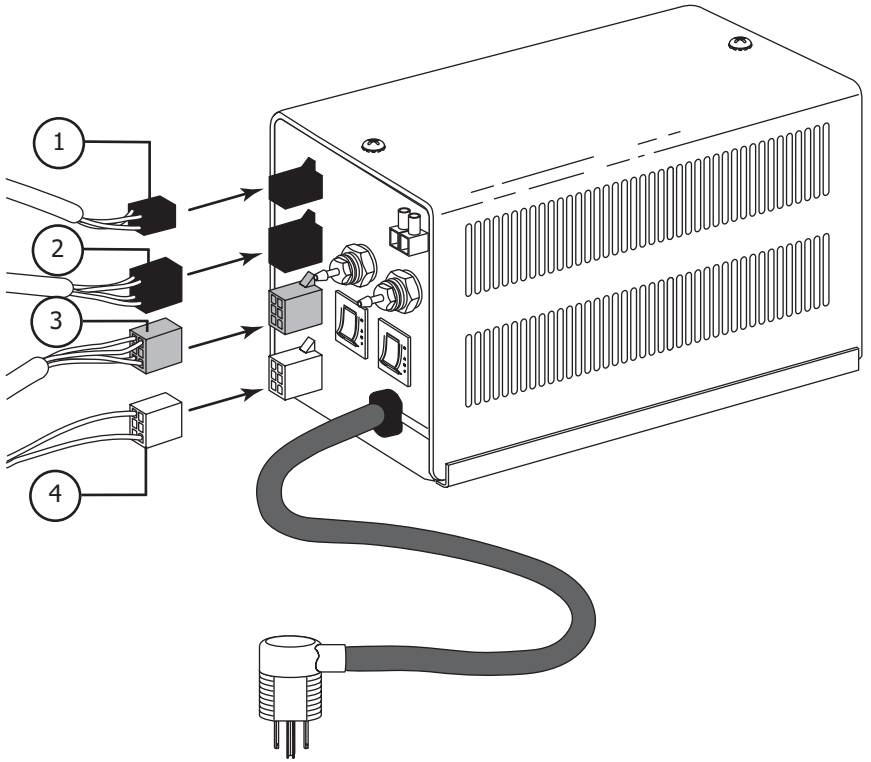
May 1998 — May 1999



After May 1999

300-Watt Power Supply Cable

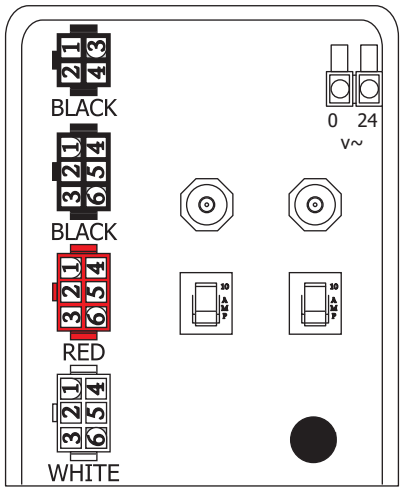
Item #	Description
1	Auxiliary cable (4 pin, Black connector)
2	Handpiece control cable (6-pin, Black connector)
3	Dental light cable (6-pin, Red connector)
4	Indicator light cable (6-pin, White connector)



Cable Connections to the 300-Watt Power Supply

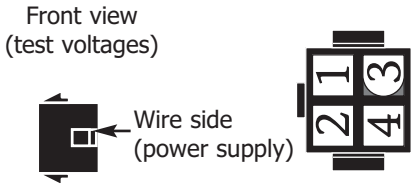
Floor Boxes and Power Supplies

300-Watt Connector/Pin Locations



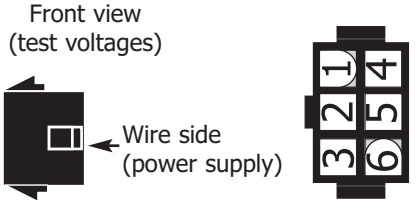
Connector/Pin Locations on the 300-Watt Power Supply

Pin	Voltage	Wire
1	0 VAC	Black/White (switched)
4	6 VAC	Red
3	24 VAC	Gray



Black 4-Pin Connector (Auxiliary Cable)

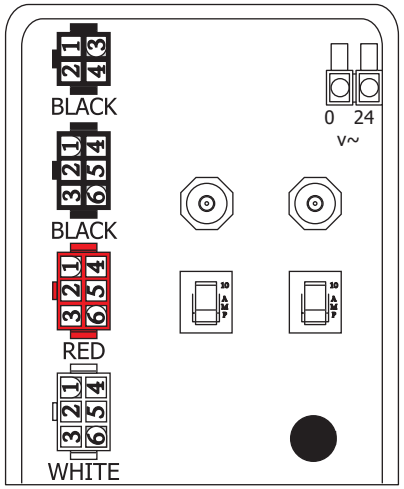
Pin	Voltage	Wire
1	Ground	Green/Yellow
2	0 VAC	Black/White
3	0 VAC	Black/White
4	6 VAC	Red
5	17 VAC	Violet
6	24 VAC	Gray



Black 6-Pin Connector (Handpiece Control)

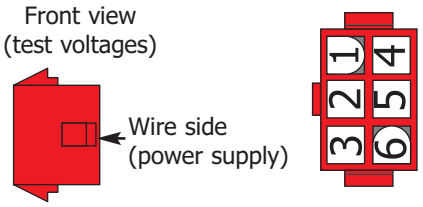
Floor Boxes and Power Supplies

300-Watt Connector/Pin Locations



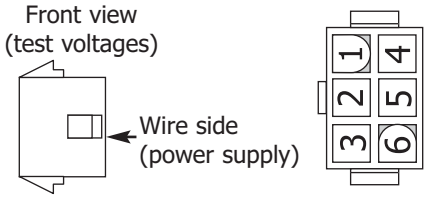
Connector/Pin Locations on the 300-Watt Power Supply

Pin	Voltage	Wire
1	Ground	Green/Yellow
2	0 VAC	Black/White
3	15 VAC	Green
4	16 VAC	Blue
5	17 VAC	Violet
6	10.8/12.1 VAC	White



Red 6-Pin Connector (Dental Light)

Pin	Voltage	Wire
1	Ground	Green/Yellow
2	0 VAC	Black
3	10.8/12.1 VAC	White
4	10.8 VAC	Orange
5	12.1 VAC	Yellow
6	12.1 VAC	Yellow

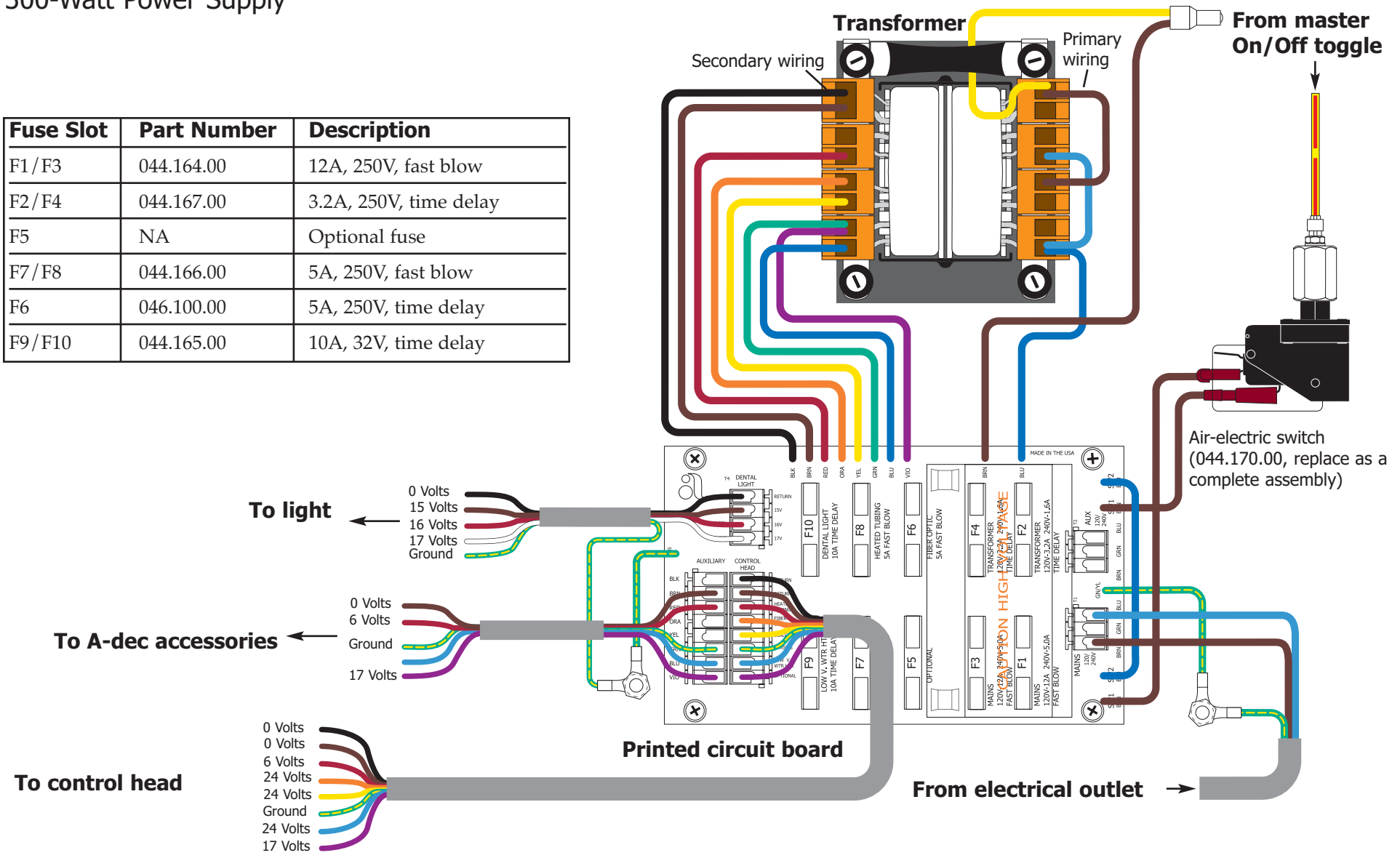


White 6-Pin Connector (Indicator Light)

120 Volt Before May 1998

300-Watt Power Supply

Fuse Slot	Part Number	Description
F1/F3	044.164.00	12A, 250V, fast blow
F2/F4	044.167.00	3.2A, 250V, time delay
F5	NA	Optional fuse
F7/F8	044.166.00	5A, 250V, fast blow
F6	046.100.00	5A, 250V, time delay
F9/F10	044.165.00	10A, 32V, time delay



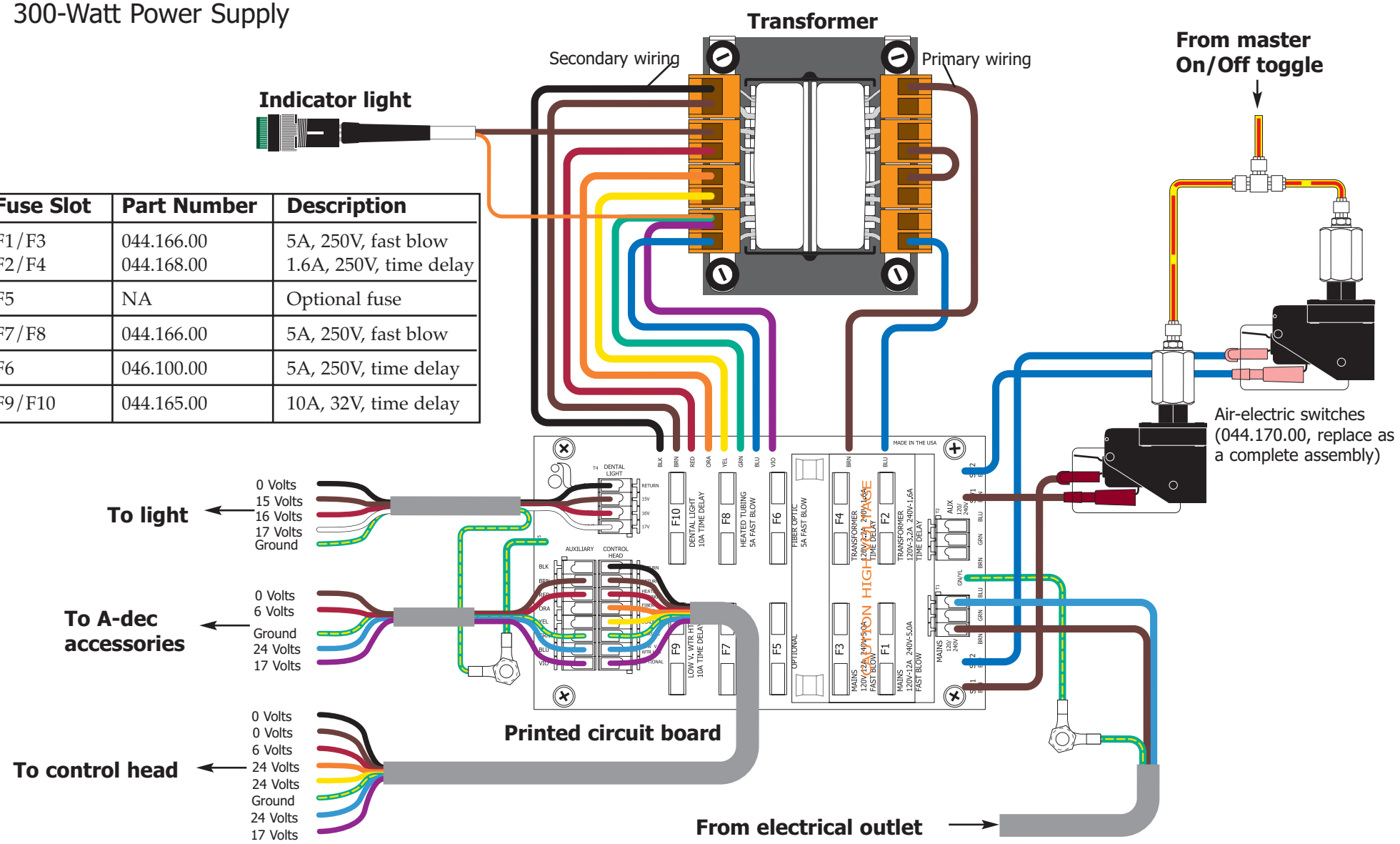
Floor Boxes and Power Supplies

Flow Diagram

240 Volt Before May 1998

300-Watt Power Supply

Fuse Slot	Part Number	Description
F1/F3 F2/F4	044.166.00 044.168.00	5A, 250V, fast blow 1.6A, 250V, time delay
F5	NA	Optional fuse
F7/F8	044.166.00	5A, 250V, fast blow
F6	046.100.00	5A, 250V, time delay
F9/F10	044.165.00	10A, 32V, time delay



Floor Boxes and Power Supplies

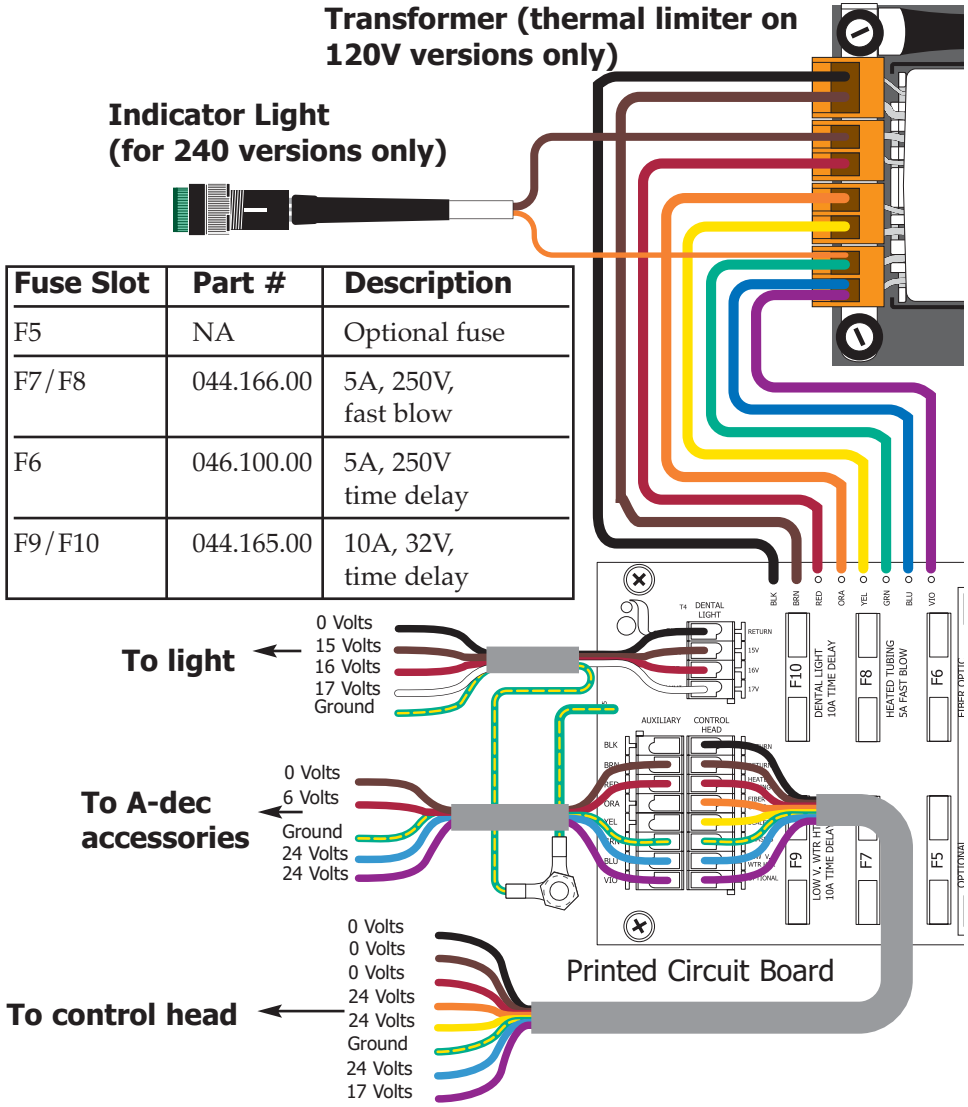
300-Watt Power Supply

NOTE: F6 fuse (violet wire) position is different compared to later versions of circuit boards.

Transformer (thermal limiter on 120V versions only)

Indicator Light (for 240 versions only)

Fuse Slot	Part #	Description
F5	NA	Optional fuse
F7/F8	044.166.00	5A, 250V, fast blow
F6	046.100.00	5A, 250V time delay
F9/F10	044.165.00	10A, 32V, time delay

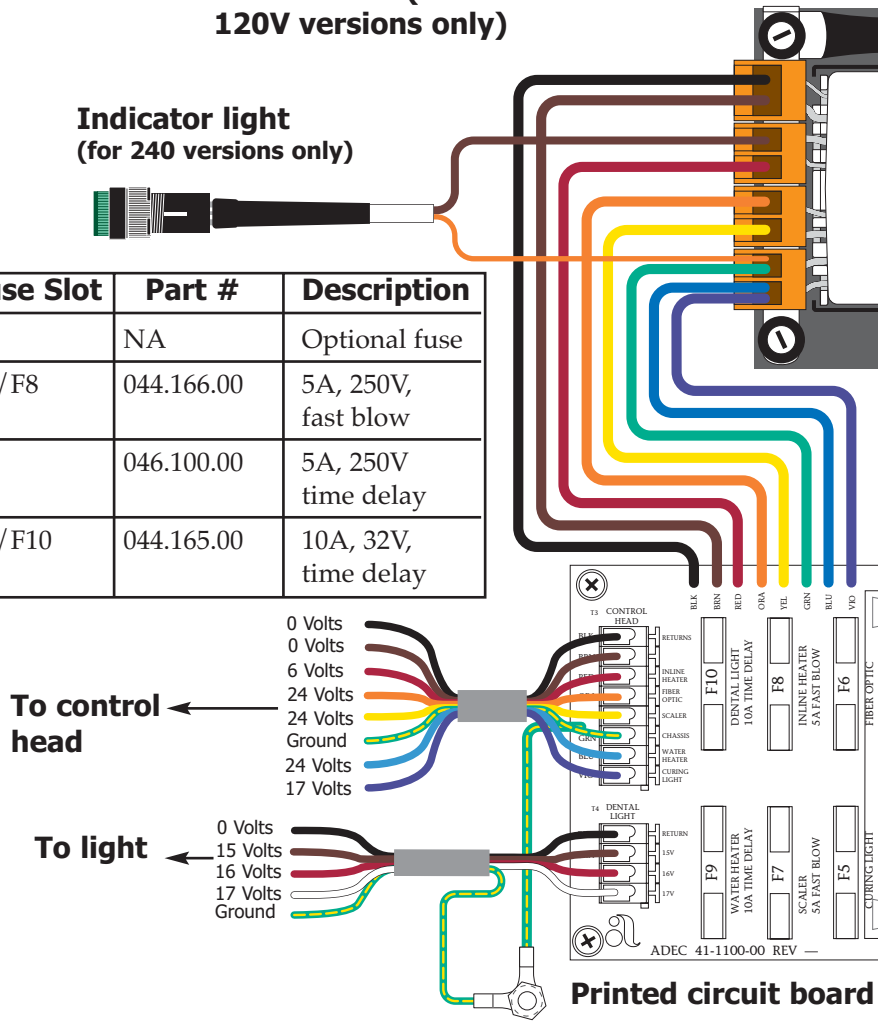


NOTE: F6 Fuse (violet wire) variations before May 1998

Transformer (thermal limiter on 120V versions only)

Indicator light (for 240 versions only)

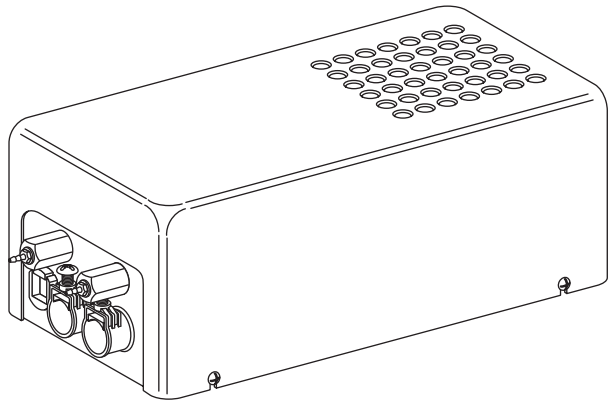
Fuse Slot	Part #	Description
F5	NA	Optional fuse
F6/F8	044.166.00	5A, 250V, fast blow
F6	046.100.00	5A, 250V time delay
F9/F10	044.165.00	10A, 32V, time delay



Replacing 150-Watt Power Supplies

The 150-watt power supply was used on equipment built before June 1998. It is no longer available for replacement. To convert from a 150-watt power supply to the new 300-watt order, an adapter kit P/N 90.1012.00 and the appropriate 300-watt power supply.

NOTE: These combinations are acceptable since not all accessories are used at the same time.



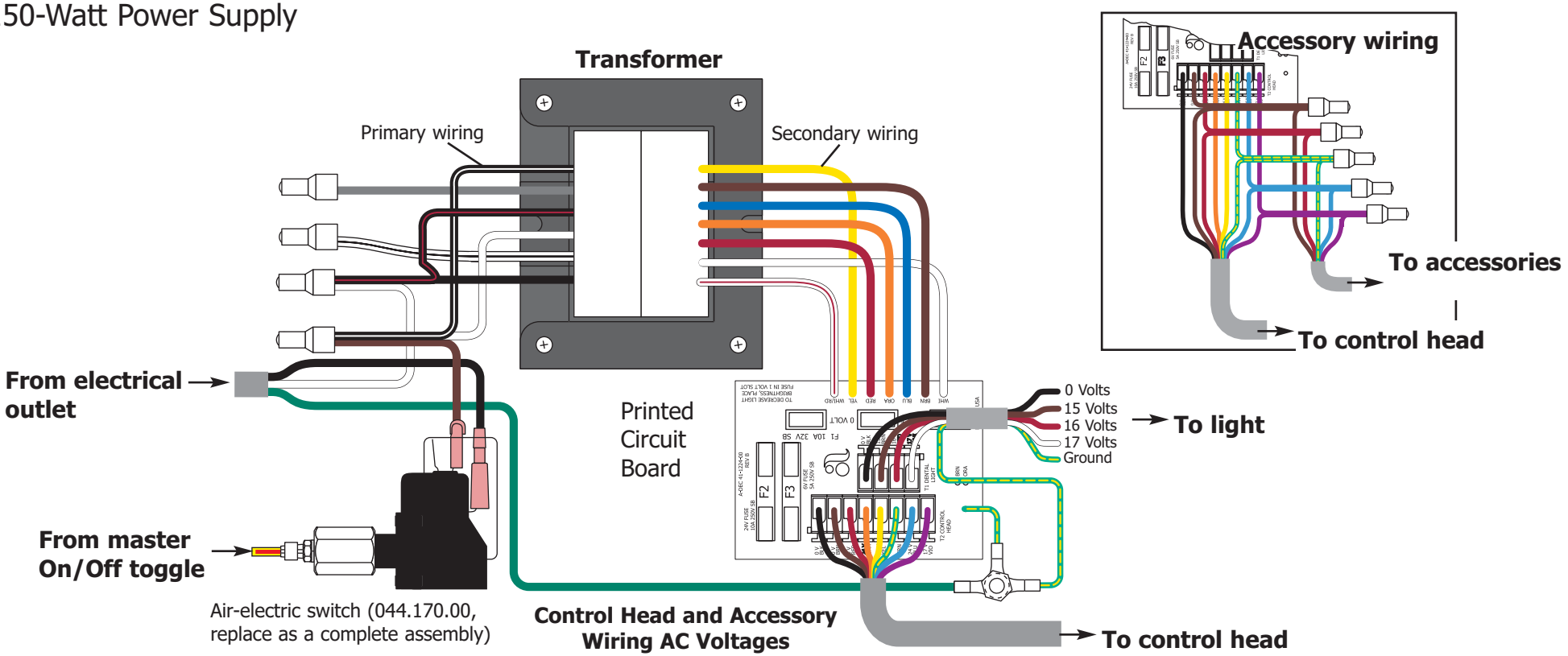
Before June 1998

Acceptable Accessory Combinations that Exceed 150-Watts

Fiber Optic (10W)	Scaler (60W)	Dental Light (95W)	One Low Voltage Water Heater (90W)	Curing Light (120W)	Electric Handpiece (80W)
X				X	X
X	X	X			
X	X		X		
X	X			X	

120 Volt Before June 1998

150-Watt Power Supply



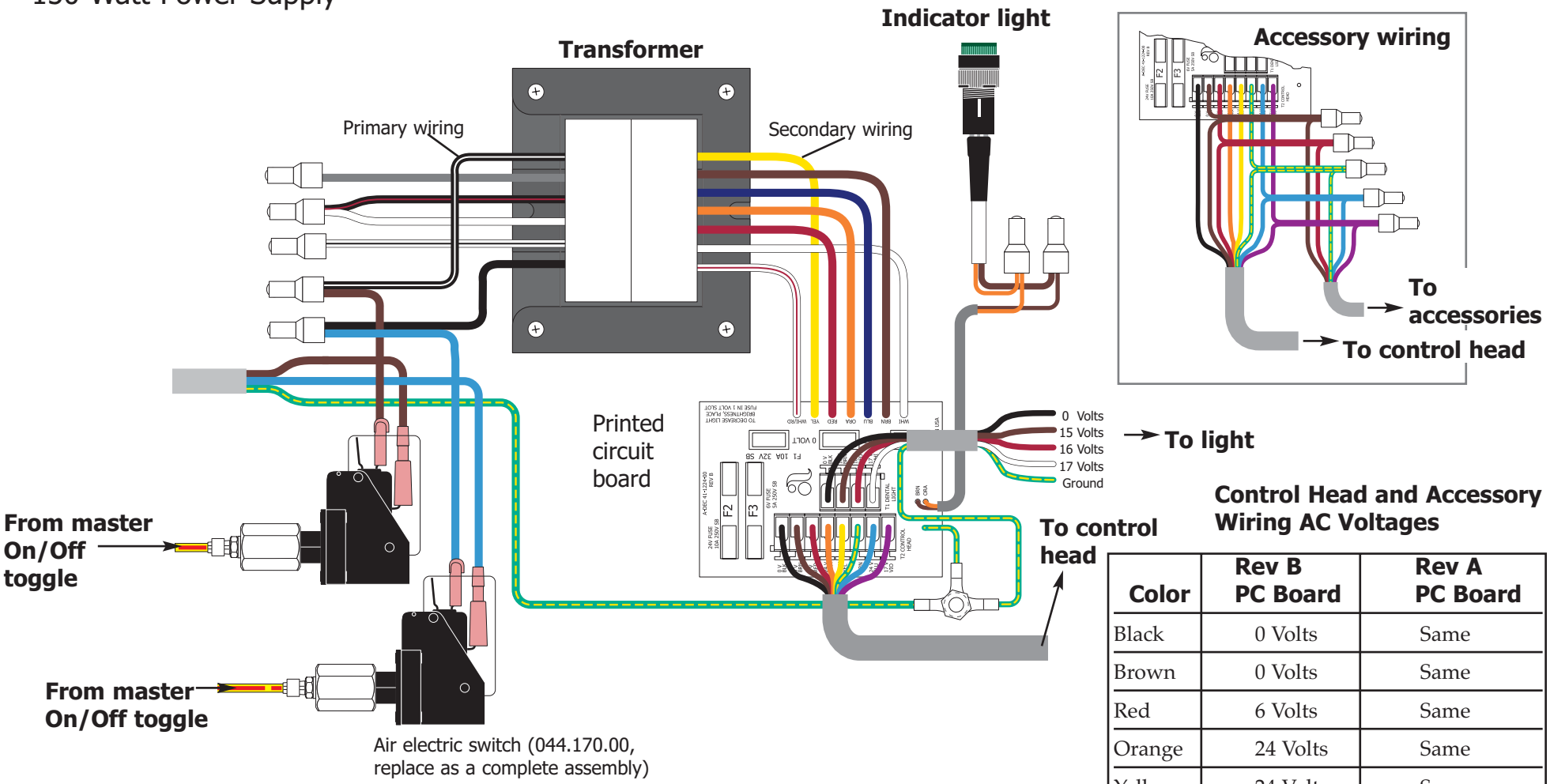
Color	Rev B PC Board	Rev A PC Board
Black	0 Volts	Same
Brown	0 Volts	Same
Red	6 Volts	Same
Orange	24 Volts	Same
Yellow	24 Volts	Same
Ground	0 Volts	Same
Blue	24 Volts	Same
Violet	17 Volts	24 Volts

Floor Boxes and Power Supplies

Flow Diagram

240 Volt Before June 1998

150-Watt Power Supply



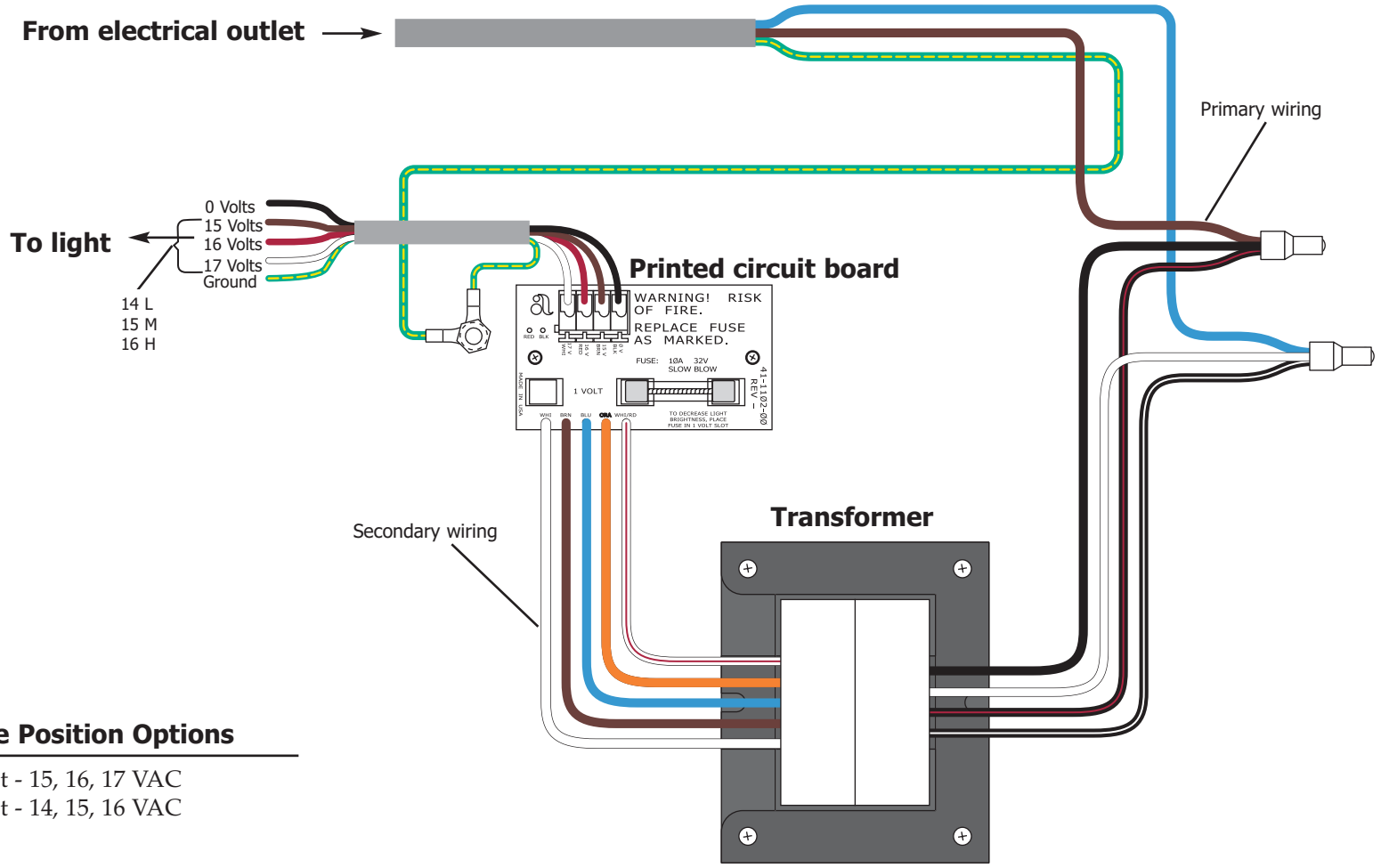
Control Head and Accessory Wiring AC Voltages

Color	Rev B PC Board	Rev A PC Board
Black	0 Volts	Same
Brown	0 Volts	Same
Red	6 Volts	Same
Orange	24 Volts	Same
Yellow	24 Volts	Same
Ground	0 Volts	Same
Blue	24 Volts	Same
Violet	17 Volts	24 Volts

NOTE: Refer to the Acceptable Accessory Combinations that exceed 150-watts chart in Replacing 150-Watt Power Supplies.

120 Volt
After May 1998

100-Watt Power Supply



Fuse Position Options

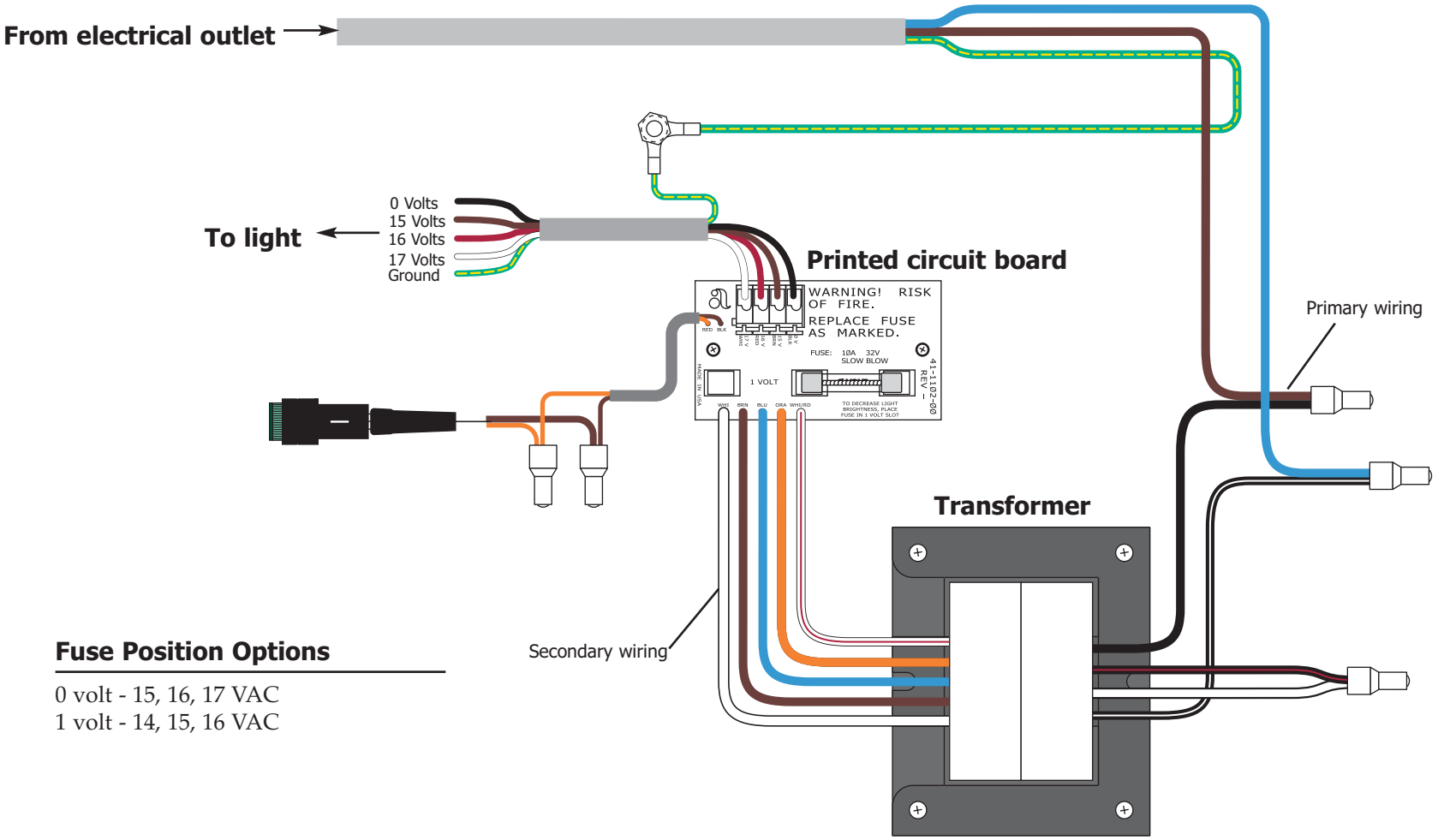
0 volt - 15, 16, 17 VAC
1 volt - 14, 15, 16 VAC

Floor Boxes and Power Supplies

Flow Diagram

240 Volt
After May 1998

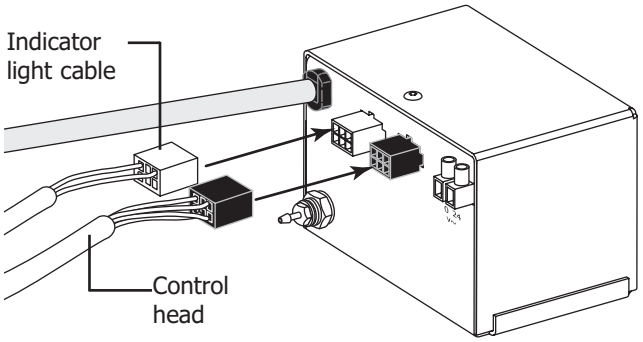
100-Watt Power Supply

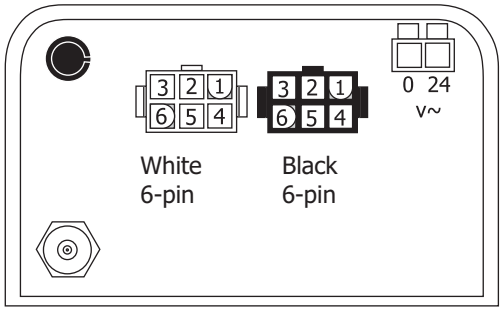


Fuse Position Options

0 volt - 15, 16, 17 VAC
1 volt - 14, 15, 16 VAC

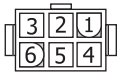
Identifying 25-Watt Connector/Pin Locations





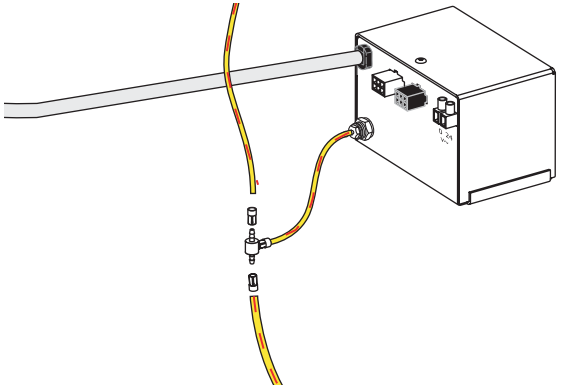
25-Watt Power Supply Cables and Connectors

White 6-pin Connector (Indicator Light)

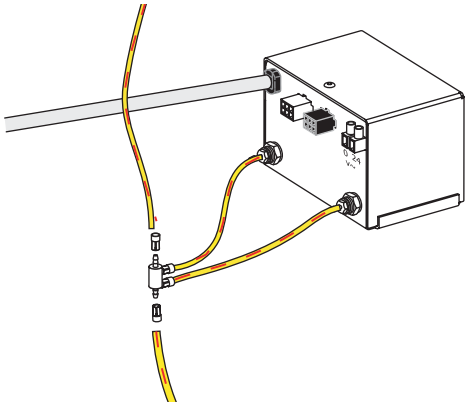


Pin	Voltage	Wire
1		
2	0 VAC	Black
3		
4		
5		
6	12.1 VAC	Gray

100 and 110-120 VAC Power Supply Plumbing



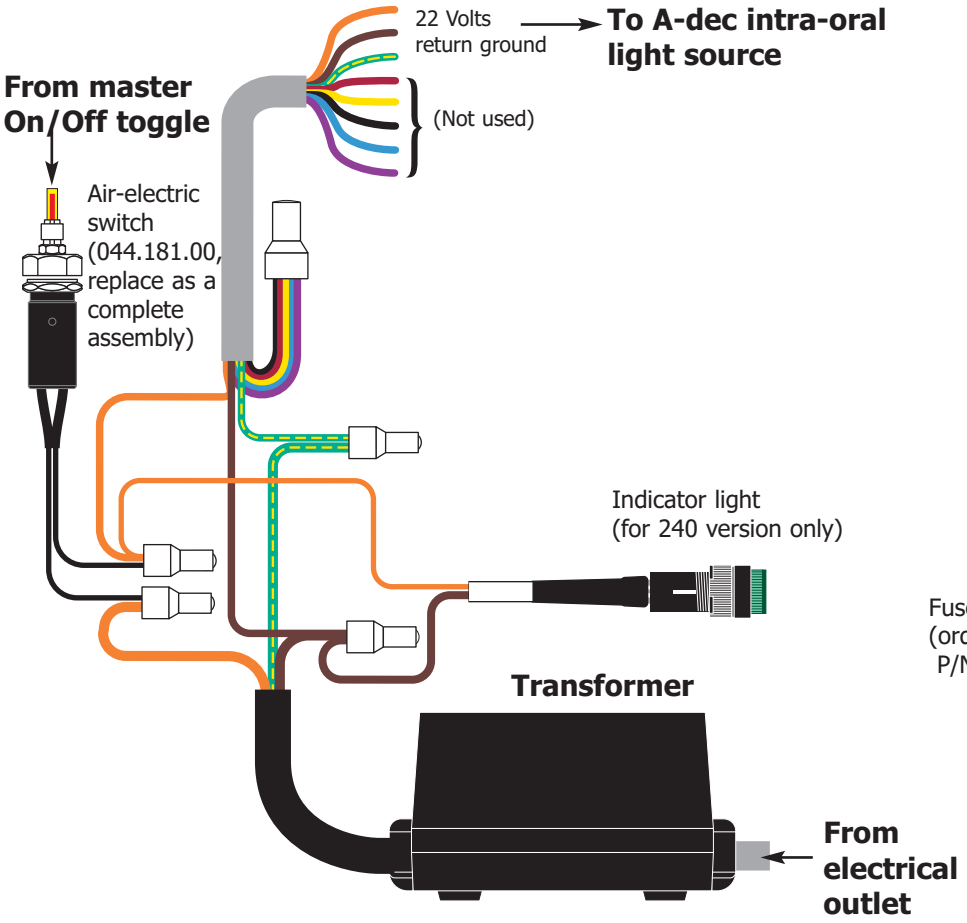
220-240 VAC Power Supply Plumbing



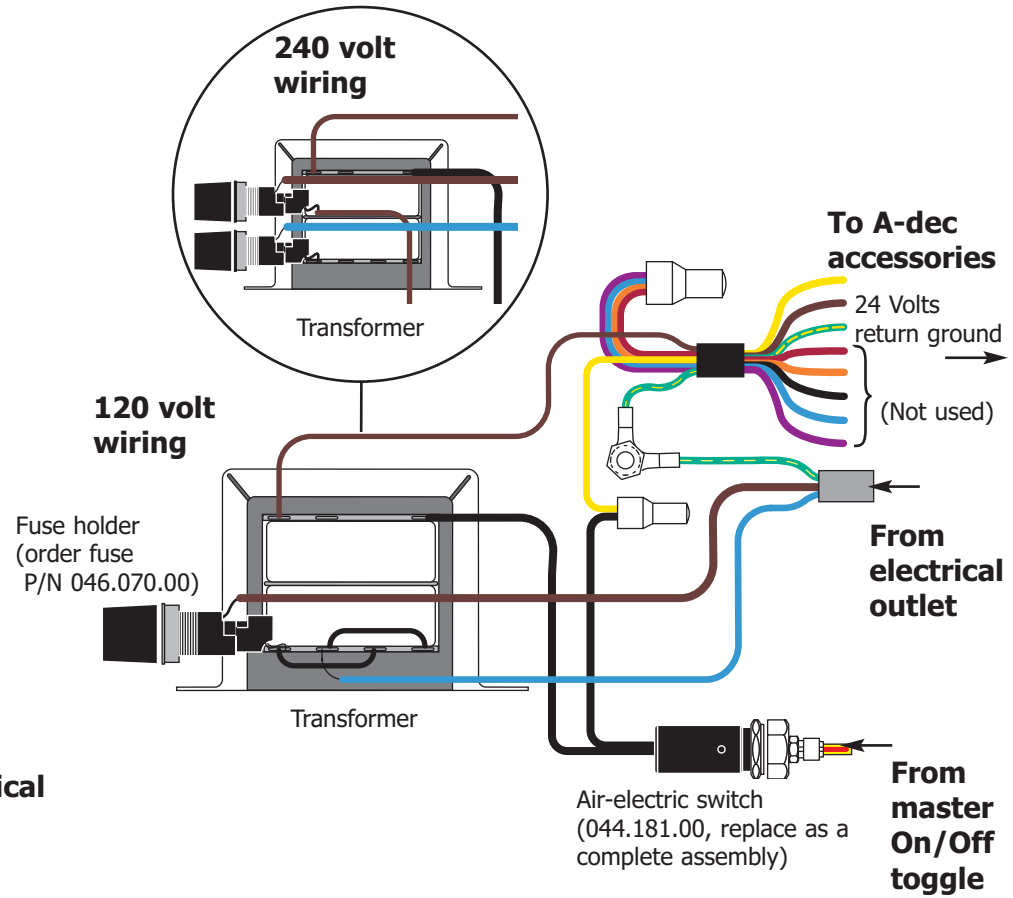
Black 6-pin Connector (Delivery System)

Pin	Voltage	Wire
1		Ground green/yellow
2	0 VAC	Black
3		
4		
5		
6	24 VAC	Yellow

17-Watt Power Supply



60-Watt Power Supply



Troubleshooting Power Supplies

Troubleshooting information for power supplies is listed in the following charts.

Problem	Action
Power supply is not working	Follow these steps to determine the problem with the power supply. **Task** **Description** 1 Plug in power supply and check for: • An indicator light that is ON, if present. • Working accessories. • Proper input line voltage (100 VAC, 110-120 VAC or 220-240 VAC). 2 Measure output voltages. • If all are correct, check for loose connections. • If some are correct, check circuit breakers. 3 Check for a tripped circuit breaker. 4 Reset the circuit breaker. **NOTE**: If the power supply is receiving line voltage and the output voltages are all 0 VAC, then an internal protector in the transformer has been tripped. Replace the entire power supply. 5 Check pilot air tubing (at the air-electric switch) air pressure. It should have a minimum of 60 psi. If not check for kinks, pinches or leakage. Replace any damaged tubing. 6 Check that the air-electric switch works properly by listening for a clicking sound. If it isn't, the power supply has failed. Replace the power supply. 7 Check for a failed power supply by removing the cover and visually inspecting the power supply for any visible damage (burnt wires, broken terminal strips or burn spots). 8 Replace the power supply.

Problem	Action
Some electrical accessories are not working	Follow these steps to check fuses for continuity and the range of AC power on the electrical outlet.

Task Description

1 Check for blown fuses:

- Unplug the power supply and remove the cover.
- Locate the appropriate accessory fuse, remove it and test for continuity.
- Replace any blown fuses.

2 Replace the power supply cover and plug in the power cord. Test the accessories that weren't functioning to ensure the problem has been fixed.

3 Check for normal AC power at the electrical outlet.

- If the AC power is within the correct range, the power supply has failed. Replace the power supply.
- If the AC power is not within the correct range, have a certified electrician correct the problem.

Nominal Mains AC Voltage Ranges

Voltage	Range
100	90-110 Volts
120	108-132 Volts
220	198-242 Volts
240	216-264 Volts

Problem	Action
None of the electrical accessories are working	Follow these steps to determine the problem when none of the electrical accessories work.

Task Description

1 Check for power at the electrical outlet. If not check the following points.

- Wall switches that may be turned off, or where appropriate, circuit breakers that may have tripped.
- Normal AC power at the electrical outlet (see chart). If the AC power is within the correct range, the power supply has failed. Replace the power supply. If the AC power is not within the correct range, have a certified electrician correct the problem.

Nominal Mains AC Voltage Ranges

Voltage	Range
100	90-110 Volts
110	99-121 Volts
120	108-132 Volts
220	198-242 Volts
240	216-264 Volts

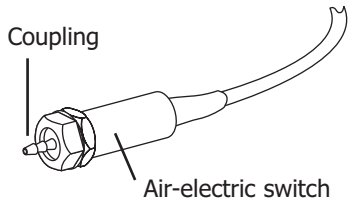
2 Check for blown fuses:

- Unplug the power supply and remove the cover.
- Locate the appropriate accessory fuse, remove it and test for continuity.
- Replace any blown fuses.

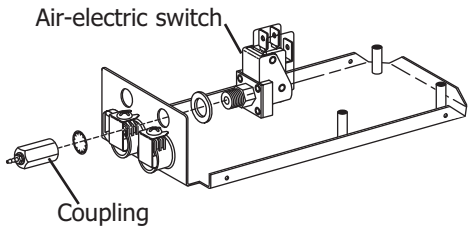
3 Replace the power supply cover and plug in the power cord. Test the accessories that weren't functioning to ensure the problem has been fixed.

4 Check for a failed power supply by removing the cover and visually inspecting the power supply for any visible damage (burnt wires, broken terminal strips or burn spots). Replace the failed power supply.

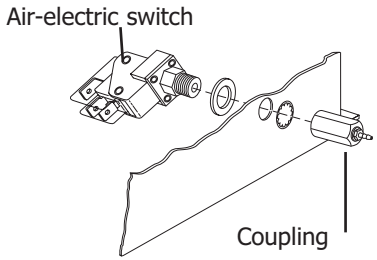
Problem	Action
None of the electrical accessories are working	5 Check pilot air tubing (at the air-electric switch) air pressure. It should have a minimum of 60 psi. If not, check for kinks, pinches or damage. Replace any damaged tubing. 6 Check that the air-electric switch works properly by listening for a clicking sound. • If it isn't, replace the air-electric switch (below) by removing the power supply cover and air switch coupling. Disconnect the failed switch and install a new one. Reinstall the coupling and power supply cover



17-Watt Air-Electric Switch



150-Watt Air-Electric Switch



300-Watt Air-Electric Switch

Replacing the Air-Electric Switch

- If the air-electric switch is working, visually inspect the power supply by removing the cover and look for any visible damage (burnt wires, broken terminal strips or burn spots.) Replace failed power supply.

7 Test voltages at the transformer secondary terminal strip.

- Plug in the power supply and remove the cover.
- Test for AC voltage at each wire contact on the transformer secondary terminal strip (use only the probes of a volt-ohm meter). The specified voltage for each position is either labeled on or below the terminal strip. The AC voltages for red, green and, violet wires should be within 1.5 volts of the specified voltage. The AC voltages for orange, yellow, and blue wires should be within 2.5 volts of the specified voltage.